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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/963,727	09/26/2001	Shibin Jiang	NP-0010	9304

30343 7590 07/30/2003

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EXAMINER
PETKOVSEK, DANIEL J

ART UNIT	PAPER NUMBER
2874	

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/963,727	Applicant(s) JIANG ET AL.	
	Examiner Daniel J Petkovsek	Art Unit 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *June 3, 2003 (amendment A)* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *7-49* is/are allowed.

6)☒ Claim(s) *1-6, and 50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Brian Healy
Primary Examiner

DETAILED ACTION

This office action is in response to the amendment and declaration filed on June 3, 2003. In accordance with the amendment, claims 1, 2, 7, 8, and 42 have been amended; and new claims 49 and 50 have been added.

Oath/Declaration

1. The declaration filed on June 3, 2003 under 37 CFR 1.131 has been considered but is ineffective to overcome the Tian US Patent Application Publication 2002/0164132 A1 reference.

The evidence submitted is insufficient to establish a reduction to practice of the invention in this country or a NAFTA or WTO member country prior to the effective date of the Tian '132 reference. There is no indication that the work at NP photonics was done either in this country, a NAFTA country, or WTO member country.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 5, and 50 are rejected under 35 U.S.C. 102(e) as being anticipated by Tian US Patent Application Publication 2002/0164132 A1.

US 2002/0164132 A1 to Tian teaches (ABS, [0009], [0030], Claims) a method and apparatus of fusing an optical fiber comprising: a first fiber formed from silica glass and a

second fiber formed from a multi-component glass, the 2nd fiber having a lower softening point than the 1st fiber (see [0030]); asymmetrically heating the fibers to raise the temperature of the silica fiber higher than that of the multi-component fiber; and moving the fibers together to form thermal diffusion bonds during splicing, which clearly, fully meets Applicant's claimed limitations. Regarding claim 2, the heating element is a distance from the gap. Regarding claims 3 and 5, see [0009] for reference to an arc for the heating source, and heating by conduction of the 1st fiber to the 2nd.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tian US Patent Application Publication 2002/0164132 A1.

US 2002/0164132 A1 to Tian teaches (ABS, [0009], [0030], Claims) a method and apparatus of fusing an optical fiber comprising: a first fiber formed from silica glass and a second fiber formed from a multi-component glass, the 2nd fiber having a lower softening point than the 1st fiber (see [0030]); asymmetrically heating the fibers to raise the temperature of the silica fiber higher than that of the multi-component fiber; and moving the fibers together to form thermal diffusion bonds during splicing. Tian '132 does not explicitly teach that the heating element consists of a heating filament that lies at least partially around the first fiber, and does not explicitly teach that the bond between the fibers has a pull-strength in excess of 100g.

Regarding claim 4, Tian '132 and related art (see [0009]) teach heating the fiber at a point displaced from the fiber ends. The fibers are to be heated by an arc, or another heat source. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use another heat source, such as a filament at least partially around the 1st fiber, for the motivation of a more evenly distributed heating function. A fully surrounded heating filament on a fiber would heat the fiber more uniformly.

Regarding claim 6, it would have been obvious at the time the invention was made to a person having ordinary skill in the art that the spliced optical fibers as shown in Tian '132 would have been designed to maintain a high pull-strength ratio. Although the pull-strength ratio is not explicitly discussed, ranges of 100g are not uncommon in the art. It is the responsibility of Applicant to prove that the claimed invention overcomes the prior art in this area.

Allowable Subject Matter

6. Claims 7-49 are allowed. The relevant prior art does not teach or reasonably suggest (claims 11-37) a method of fusion splicing of optical fibers, in that a first fiber is formed of a silica glass and a second fiber is formed comprising a core with a first multi-component glass, and an outer cladding with a second multi-component glass, the second multi-component glass having a softening point higher (and being more compatible for forming thermal bonds with silica glass) than the first multi-component glass. The method includes generating heat so the second fiber softens, but the first silica fiber does not soften, and a thermal diffusion bond develops between the first fiber and the second fiber's outer cladding. Regarding claims 38-41, the prior art does not teach or reasonably disclose a method of drawing a multi-component fiber

that is compatible with fusion splicing in which the properties of the second fiber exist as stated above.

Regarding claims 42-48, the minor informalities previously objected to have been corrected by the amendment filed June 3, 2003. The claims are allowable for the same reasons as given above, with particular reference to the second fiber with two multi-component layers for adjoining the silica fiber to the cladding of the second fiber.

Regarding claims 7-10, the amendment to include allowable subject material into the independent claim, as suggested in the previous office action, has been acknowledged. The relevant art does not teach or reasonably suggest the percentages of the multi-component glass in claim 7, or the restrictions of the second multi-component fiber in claims 8-10.

Inventorship

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Conclusion

The amendment filed June 3, 2003 has been fully considered. The 35 U.S.C 102 (e) and 103 (a) rejections to claims 1-6 to Tian '132 remain due to the insufficient declaration. New claim 50 is rejected by Tian '132.

8. Accordingly, **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J Petkovsek whose telephone number is (703) 305-6919. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (703) 308-4819. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 872-9321.

Daniel Petkovsek
July 25, 2003

Brian Healy
Primary Examiner